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Exploring Greek Teachers' Beliefs Using Metaphors

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Abstract: When teachers describe their roles through metaphors, they also construct specific personal meanings about teaching. Despite the frequency with which teachers and teaching are treated metaphorically there has been no previous systematic attempt to explore them in Greece. Our paper seeks to fill this void by examining the various metaphors used by teachers to describe the experience of teaching and suggests how and to what extent the understanding of the metaphors can be useful in exploring teachers' beliefs and how they may contribute to teacher education programs. A questionnaire was devised to a sample of 156 in-service teachers which focused on teachers' metaphors and their beliefs about teaching, teacher-student roles, classroom climate and their beliefs about knowledge. The findings of our research illustrate the various metaphors that Greek teachers hold, indicating that they have probably not elicited and elaborated them.

Introduction

In recent years the discussion over postmodernism has been transferred to education affecting the way we understand societies and the educational process (Beck 1993). Postmodernism is based upon four basic themes: (a) the foundationlessness of knowledge, (b) the fragmentariness of knowledge, (c) the constructivism of knowledge and (d) the neopragmatism of knowledge (Polkinghorne 1992; Botella 2003). This paper adopts a postmodern point of view stressing the role of the teacher as an "autonomous, reflective teacher-researcher" (Parker 1999:3).

In the context of postmodernism the teacher is regarded as a "reflective teacher" who uses "self-reflection as a means of overcoming stereotypical judgments and responses" (Elliott 1998:19-20). Being a reflective practitioner "involves thinking about and critically analyzing one's actions with the goal of improving one's professional practice... When reflecting in action, a professional becomes a researcher in the context of practice, freed from established theory and techniques and able to construct a new theory to fit the unique situation" (Schön 1983:3). A reflective teacher "…is aware of the questions, the assumptions and values he or she brings to teaching; is attentive to the institutional and cultural context in which he or she teaches; …takes responsibility for his or her own professional development" (Zeichner & Liston 1996:6) and "has the responsibility for examining the moral and ethical ramifications of all societal change" (Kelly, Davey & Haigh, 1998:136).

Richardson (1996:106) proposes that assumptions and values teachers bring into teaching should be surfaced and acknowledged within a constructivist learning and teaching framework during teacher education programs, if these programs are to make a difference in "the deep structure of knowledge and beliefs held".

Apparently to be a "reflective teacher" one should be aware of what is often referred to as "teacher conceptions", "teacher perspectives", "constructs", "understandings", "teachers thinking", "attitudes", "beliefs", "values", "metaphors", "images", "pedagogical content knowledge", "practical knowledge", "implicit theories", "personal theories", "principles of practice", "judgements, axioms, opinions, ideology, perceptions, conceptions, conceptual systems, preconceptions, dispositions,… internal mental processes, action strategies, rules of practice, practical principles,… repertories of understanding, and social strategy, to name but a few that can be found in the literature" (Pajares 1992:309; Chan 2001). Pajares (1992), in trying to clarify the meaning and definition of professional knowledge, used the term "personal theory" to reduce any confusion, a term which we also adopt. Nevertheless, we also use the term "belief" to signify the teachers' personal theory on specific issues. Thus, we conceptualize "personal theory" as a larger system of interconnected beliefs. The term "pedagogical content knowledge" is also used in the sense proposed by Shulman (1987) as a conceptualization –widely accepted– for teachers' content-specific belief systems about students' learning and appropriate ways of teaching.

Argyris & Schön (1974: 78) differentiate between two kinds of personal theory: (a) the espoused theory which is the theory that people intend or hope to use and (b) the theory-in-action which is what people actually do in real life situations. Furthermore, they support that the practitioners' assumptions, reflections, and perspectives "constitute a psychology of everyday life". Hunt (1987: 1) writes that implicit personal theories are often "common sense ideas and unexpressed theories growing out of personal experience". Teachers construct their professional knowledge and as Carr and Kemmis (1986) suggest, anyone engaged in teaching already holds some theories which guide his or her practices.

Taylor, Dirkx and Pratt (2001) in their "Model of Personal Pedagogical Systems" suggest that personal theory for teaching and learning consists of (a) the *Core Beliefs* (declarative statements about what is assumed true or what is assumed to be "right" or "proper" in relation to instruction or learning), (b) the *Foundational Knowledge* (a body of knowledge or skill that is deemed essential for effective teaching, a "script" for teaching, rationalized to be consistent with Core Beliefs and a basis for informal teaching theory) and (c) the *Informal Theory of Teaching* (gives a sense of role and responsibility and a theory of what "works" and what doesn't in teaching).

Teacher education programs are a source from which teachers derive their personal theories about teaching and learning (Chan 2001). Pajares (1992) notes that attention to teachers' beliefs can inform educational practice in ways that prevailing research has not and that this is essential for the improvement of their professional preparation and teaching practices. Teachers' beliefs about teaching and learning influencing their practice are often expressed with metaphors (Elbaz 1983; Handal & Lauvas 1987; Thornbury 1991), therefore, it is important to be surfaced and examined. Metaphors are commonly used as a powerful research tool in teacher education programs for eliciting the personal theory of teaching and learning (Goldstein 2005; Saban 2004; Saban et al. 2007; Wright et al. 2003).

The theoretical basis upon which such efforts rely to interpret teaching and learning (Blumer 1969; Bullough et al. 1992; Denzin 1994; 2001) is symbolic

interactionism which has largely been associated with pragmatists (James 1907; Mead 1934; Dewey 1922; Pierce 1958). Symbolic interactionism has affinities with hermeneutics (Heidegger 1927; 1988) and phenomenology (Husserl 1913) and rests upon three basic premises: (a) human beings act toward things on the basis of the meanings that the "things" have for them ("things" may be physical objects, other human beings, categories of human beings, guiding ideals, activities of others, institution, everyday situations etc.), (b) the meanings arise in the process of interaction between people, they do not pre-exist and things do not impose meaning on people, (c) since meanings are used through interpretation, the last one is unavoidably idiosyncratic (Bullough et al. 1992).

Empirical research studies have concluded that teachers' beliefs differ significantly in the extent to which they correspond with everyday practice; they are reflected at their pedagogical content knowledge, they show up in teachers' conceptions of teacher and learner roles, they are related to student achievement and they widely vary (Peterson et al. 1989; Staub & Stern 2002). Studies also support the existence of different degrees of consistency between pedagogical beliefs and instructional practice, although it is not clear whether beliefs influence practice or practice influences beliefs in this dialectical relationship (Handal 2003: 51). In general a strong relationship between teachers' beliefs, attitudes and everyday practice is suggested (Richardson 1996). Furthermore, assumptions about knowledge are part of the beliefs that are related to a personal epistemology which Schommer (1990) characterized as a system of more or less independent beliefs that have distinct effects on comprehension and learning. It is claimed that the development of beliefs over time would be difficult to predict, to control and to influence due to the insufficient relevant empirical research on the formation and change of beliefs. Empirical research for the development of beliefs over time would have to address questions such as: how beliefs come into being; how they are supported or weakened; how people are converted to them and how socialization within schools' social context operates on them (Nespor 1987).

Metaphors

Metaphor is a Greek word, which means transfer (*meta* means *trans*, or *"across"*; *phor* means *fer*, or *"ferry"*) (Fenwick 2000). Lakoff and Johnson (1980:193) argue that metaphors are basic to understanding, thought, and action. They suggest that metaphors are a powerful tool for "trying to comprehend what cannot be comprehended totally: our feelings, aesthetic experiences, moral practices and spiritual awareness". The reasons for using metaphors in our language can be summarized in three hypotheses (Gibbs 1994; Fainsilber & Ortony 1987; Ortony 1975): (a) *inexpressibility hypothesis*, suggesting that metaphors allow us express things that cannot be expressed through the use of literal language, (b) *compactness hypothesis*, suggesting that metaphors allow the richness of communication capturing the complexity of experience and (c) *vividness hypothesis*, suggesting that metaphors communicate ideas more vividly than through the use of literal language. It must be remarked that simile is also a form of metaphor which makes explicit the resemblance between the topic and the vehicle of a metaphor through the use of "like" or "as" (Gibbs 1992; Glucksberg et al. 1992; Kemp 1999).

An insight into teachers' attitudes (and probably practices) can be provided by their use of metaphoric language (Russell 1988; Sumsion 2002; McGrath 2006).

Metaphors have been used for evaluation, strengthening the ability to highlight positive and negative experiences helping individuals to express themselves more freely (Kemp 1999). The communication of concepts and ideas that are difficult to be represented in literal written language can be facilitated by the use of metaphors from teachers according to Carter (1990). Furthermore, Munby (1986:201) argues that metaphors which teachers express are a fruitful way to begin to understand their thinking. Certain problems require a mental mode or image in order to be solved. By generalizing teaching situations teachers are expected to draw upon images of lessons, incidents or students to solve the various teaching problems. Metaphors can help in the transition from vision to voice (Stokes 1994). Also, reflection can be encouraged by the use of analogies and metaphors. Metaphors seem to be central to the formation, development, and exploration of the teacher self and could contribute to the understanding of how teachers define themselves and of how teachers define others – i.e. their students– (Stokes 1994). In teacher education metaphors have been used for reforming teaching practices, rethinking teacher roles (Tobin 1990; Tobin & LaMaster 1995; Vadeboncoeur & Torres 2003) and for discovering the different assumptions about knowledge which influence their teaching and learning (Wilson 1995).

Despite the frequency with which teachers and teaching are treated metaphorically there has been no systematic attempt to explore teachers' metaphors in Greece (Fenwick 2000; Gasner 1997; Lim 1999; Mahlios & Maxson 1998; Martinez et al. 2001; Miller et al. 2002; Oxford et al. 1998; Robertson 2003; Stofflett 1996; Stokes 1994; Tobin & Tippins 1996; Volkmann & Anderson 1997; Wilson 1995; Wright et al. 2003). The lack of relevant research continues the reproduction of the existing teacher education system, in the context of which teachers are treated in a traditional way as "blank slates" largely ignoring the ideas and beliefs they bring with them, even when the educators hold alternative views about teaching and learning (Kokkotas 2003; Papas 1996). Nevertheless, research has shown that when teacher education programs concentrate on imparting pedagogical knowledge, little consideration is given to challenging teacher's beliefs which exert strong influence on knowledge acquisition (Tillema 1995).

Known Difficulties in Working with Metaphors

Metaphors may frame understandings in a distinctive way but this framing is partial and produces one-sided insight. Metaphors emphasize certain interpretations and influence the description. They often simplify and freeze reality, rebate contradiction and remove complex details to create a coherent image, which can be apprehended and can be "known" (Fenwick 2000).

Difficulties with the interpretation of metaphors include: (i) too many possible interpretations; (ii) some are too ambiguous and abstract to be interpreted; and (iii) they can be interpreted differently by different researchers (Lim 1999; Glucksberg et al. 1992).

Besides, conceptual metaphors are not only created but also inherited from the community to which each one belongs. Also cultures embed a changing repertoire of favoured metaphors, which reflect particular aesthetics (Fenwick 2000). As a result, persons belonging to the same community tend to prefer specific metaphors frequently oblivious to the meaning constructed and communicated through their use (Robertson 2003). Consequently, a realistic approach about theorizing with metaphors will have to give up the hope that they will ever combine into a consistent global

theory, rather it seems that they can add importantly to the local sense making (Sfard 1998). Furthermore teachers' metaphors could be biased (e.g. influence from metaphors already stated) and therefore they may not represent teachers' actual thinking (Miller et al. 2002).

Thus, caution is necessary with drawing conclusions about the extent to which metaphors are interlinked with teachers' personal theory and practice. All the above mentioned debates about metaphors were considered during our research planning and conduction in an effort to avoid bias and data misinterpretation.

Aims of Research

The purposes of our research are:

1) to elicit the metaphors that Greek teachers hold about instruction and present:
   a) their diversity
   b) the conveyed assumptions about knowledge according to Wilson's (1995) categorization
2) to find out about teachers, using already stated metaphors mentioned in the literature (Kokkotas 2003, 2004; Matsagouras 1998a; 1998b; 2000; Papas 1995; 1996; Papas et al. 1997; Bullough et al. 1992; Ross et al. 1992; Matsagouras & Helmis 2000):
   a) if they prioritize assumptions about knowledge (Wilson 1995) when choosing metaphors about teaching and learning
   b) which is their preferred role in relation to classroom climate
   c) which is their preferred role as professionals.

Although the use of metaphors to describe approaches to learning and instruction as scientific paradigms, metaphors and models who guide educational research and theory has been discussed (Farnham-Diggory 1994; Sfard 1998), this research differentiates in trying to elicit the teachers' metaphors and relate them to teachers' beliefs about knowledge, instruction, student and teacher role, as well as classroom climate. Teachers' metaphors can substantially differentiate from the scientific paradigms, metaphors and models in conveying also teachers' personal experiences, emotions, aesthetics and understandings which can be culturally influenced or defined. Moreover, metaphors can also be used as an evaluation tool, allowing teachers to express in a less constrained way than traditional evaluation techniques and highlighting positive and negative experiences (Kemp 1999). Metaphorical expressions are not simply the result of temporary, ad hoc categorization processes, but, more powerfully, are fundamental schemes in long-term memory by which people make sense of their experience -and this explains why they seem so consistent with our experience and why they are so easily comprehended- (Gibbs 1992). Respectively, our research contributes by fostering a better understanding about the way Greek teachers make sense of their experience within their cultural context and encourages awareness of cultural diversity.

Research Methodology and Tool Description

In order to ensure a high number of Greek teachers' metaphors, a questionnaire was devised and used for data collection as opposed to an interview

procedure. Our sample consisted of 156 in-service teachers and a random cluster sampling technique was used in which schools served as clusters.

Two pilot studies were conducted with samples of 5 and of 10 teachers accordingly. The pilot studies contributed into finalizing the questionnaire. Initially the aim was to induce teachers to state their metaphors spontaneously, so there was one open question, which was the first one in the questionnaire. However, it transpired that the teachers wanted some examples before completing the open question. After careful consideration it was decided that it would be best if the teachers completed the multiple choice part of the questionnaire before proceeding to the part with the open question. Furthermore, we added two examples of metaphors emphasizing teacher role, learning procedure and student role prior to the open question. In order to help teachers place emphasis on these aspects of their metaphors the initial question of the pilot study ("Write the metaphor which corresponds most to your role as a teacher") was broken down into three questions. To avoid the danger of biasing the teachers' responses by giving only one or two examples it was decided to present them with all the known examples of metaphors from the literature. In this way we would give them a wide range of metaphors and ideas to consider from which they could formulate (if they haven't already done so) their own metaphor. The samples of the two pilot studies are not included in the final research results.

The final version of the questionnaire which was used for our main research consisted of two distinctive parts. The first part involved multiple choice questions with known metaphors taken from the relevant literature (Kokkotas 2003; 2004; Matsagouras 1998a; 1998b; 2000; Papas 1995; 1996; Papas et al. 1997; Bullough et al. 1992; Ross et al. 1992; Matsagouras & Helmis 2000), while the second part included three open questions to help teachers freely express their own metaphors. The open questions focused on revealing the beliefs that teachers held about knowledge, their role, students' role and the teaching process.

The first part of the questionnaire prompted teachers to choose from already stated metaphors intending to investigate if they prioritize assumptions about knowledge (Wilson 1995) when choosing metaphors about teaching and learning, which is their preferred role in relation to classroom climate and which is their preferred role as professionals. Wilson's (1995) categorisation was used (Tab. 1) for the assumptions about knowledge and the corresponding conceptions about instruction, as an alternative to Fox's (1983) initial categorization**.** This categorization reflects the three core instructional paradigms –behavior model, development model and apprenticeship model– mentioned by Farnham-Diggory (1994) differentiating the development model for distinctive instructional strategies aiming to either changing an individual's schemas or providing a rich environment to the learners from which they draw on tools and resources. Furthermore, we included in the apprenticeship model the "knowledge creation metaphor" of Paavola and Hakkarainen (2005), which conceptualizes knowledge as "trialogical", emphasizing not only on the individual or the community but also on the way people collaboratively develop mediating artifacts. For each of the four assumptions about knowledge two different metaphors were chosen and stated in a way that clearly corresponded to a specific assumption. These metaphors were organized into two groups (first group: "teaching is cooking", "teaching is coaching", "teaching is guiding" and "teaching is organizing a beehive"; second group: "teaching is taking care of a garden", "teaching is selling a product", "teaching is organizing a worksite" and "teaching is training a locksmith to use tools"). Both groups included metaphors of the four assumptions about knowledge, but for each assumption a different metaphor was used. Teachers had to rate each

metaphor (strongly agreed, agreed, disagreed or strongly disagreed) and then choose only one from each group as the metaphor which most corresponded to their own personal beliefs (items #1 & #2). These two items intended to test the research hypothesis that teachers would prioritize their beliefs about knowledge when choosing metaphors. Thus, teachers would tend to choose the metaphors that conveyed the same assumptions about knowledge and their corresponding conceptions of instruction in these questions.

Assumptions about knowledge	Conceptions of instruction
A quantity or packet of content to be transmitted	A product to be delivered
A cognitive state as reflected in a person's schemas and procedural skills	A set of instructional strategies aimed at changing an individual's schemas.
Personal meanings constructed by interaction with one's environment	Learners drawing on tools and resources within a rich environment.
Enculturation or adoption of a group's ways of seeing and acting	Participation in a community's everyday activities

Table 1: Wilson's (1995) categorisation of assumptions about knowledge and corresponding conceptions of instruction

Accordingly, six similes regarding teachers' role in relation to classroom climate (teacher as "friend", "parent", "saviour", "guard", "entertainer" and "balanced between efforts and effectiveness") and eight similes for teachers' role as a professional (teacher as "public servant", "expert", "sculptor of souls", "visionary of a society of equal opportunities", "researcher", "gardener", "manager" and "reflective") from the relevant literature were also selected. Similarly, teachers were asked to rate (strongly agreed, agreed, disagreed or strongly disagreed) from individual similes and then choose only one as their preferred for classroom climate (item #3) and as their preferred teacher's role (item #4). Since similes make explicit the meaning of the metaphor this part of the questionnaire aimed at presenting Greek teachers' preferred metaphors from the relevant literature regarding their role in relation to classroom climate and as professionals.

The second part of the questionnaire, which was the main focus of the research, consisted of two examples of metaphors (teaching is like flying a kite and teaching is like cooking) and three open questions ("Write the metaphor which corresponds most to your ideas about teaching in the classroom.", "How you 'see' yourself, your students and the results of your teaching through this metaphor?" and "Highlight the points of your metaphor which are most important for you in relation to your teaching in the classroom."). This part intended to elicit the diversity of Greek teachers' metaphors about teaching and learning. Teachers, when forming metaphors, reveal their beliefs about knowledge and therefore their responses to the open questions could be categorized according to the assumptions about knowledge that the metaphors conveyed (Wilson 1995). Furthermore, the expectation was that the categorized teachers' responses to the open question would be similar to the answers given in the first and the second multiple choice questions (items #1 & #2) strengthening the assumption that teachers prioritized their beliefs about knowledge when choosing them. The research hypothesis was that if teachers prioritized their beliefs about knowledge when choosing metaphors their categorized responses to the open questions would be similar to the ones given in the first and the second multiple choice questions (items #1 & #2).

The first part of the questionnaire claims construct and face validity by using already stated metaphors from the relevant literature which connects them to specific

assumptions about knowledge, classroom climate and teacher as a professional (Kokkotas 2003; 2004; Matsagouras 1998a; 1998b; 2000; Papas 1995; 1996; Papas et al. 1997; Bullough et al. 1992; Ross et al. 1992; Matsagouras & Helmis 2000). The second part of the questionnaire claims construct and face validity since answering spontaneously to open questions is one of the usual procedures for eliciting metaphors (Miller et al. 2002; Fenwick 2000; Martinez et al. 2001; etc).

For data storage and analysis SPSS 13.0 for Windows (SPSS Inc. Chicago, IL, USA) was used.

Data Collection and Analysis

Only three teachers (1.92%) returned the questionnaire uncompleted. Age ranged for the sample from 35 to 46 with an average of 38.2 years. The sample was constituted of 97 (67.2%) women and 59 (37.8%) men. All teachers participating to this research had experience with teaching, most of them (71.1%) had 11-20 years or more of service in education, some of them (21.8%) had 6-10 years of service in education and only a few (7.1%) had 1-5 years of service. Moreover, 115 (73.7%) of them were also parents. The sample included only teachers who participated in a project of the Ministry of Education with the cooperation of the Greek Universities of Primary Education. The project focused at educating teachers that had obtained professional rights with only two years of studies and, furthermore, keeping them up to date with contemporary issues of education and relevant scientific research findings. Each teacher had to follow ten predefined university courses which were taught intensively for about three months each. Teachers participating in the project had to complete their courses within an academic year. The research was conducted towards the end of spring with teachers that were completing the project successfully.

Teachers' beliefs according to Wilson's (1995) categorization of assumptions about knowledge as derived from the multiple choice questions (items #1 & #2) are presented (Tab. 2) along with the answers from the open questions (items #5, #6 & #7) also categorized accordingly.

	Multiple Choice Questions				**Open Questions**	
	Item #1		**Item #2**		**Items #5, #6, #7**	
	N	**%**	**N**	**%**	**N**	**%**
Delivering a product	3	1.92	10	6.41	8	5.13
Changing an individual's schemas	25	16.03	57	36.54	12	7.69
Drawing on tools and resources	51	32.69	59	37.82	18	11.54
Participating in a community	74	47.44	27	17.31	92	58.97
Missing	3	1.92	3	1.92	26	16.67
Total	156	100.00	156	100.00	156	100.00

Table 2: Teachers' beliefs according to Wilson's (1995) categorization of assumptions about knowledge

A Marginal Homogeneity Test for the multiple choice questions #1 and #2 showed that they presented two distributions which were not similar ($p=0<0.5$). This difference in distribution is best illustrated in the cross tabulation (Tab. 3) from which

it occurs that the off-diagonal cases (91) are more than the diagonal ones (62) and implies that teachers didn't choose the metaphors on the basis of the assumptions about knowledge that the metaphors conveyed. Thus, the research hypothesis that teachers prioritized their beliefs about knowledge when choosing metaphors was rejected. The metaphors included in the first multiple choice question (item #1) were tested for correlation with Kendall's tau-b. For most pairs of the metaphors Kendall's tau-b was found under 0.20 [tau(153)≤0.193] while only two pairs showed a statistically significant correlation. The metaphors "teaching is coaching" and "teaching is cooking" were found statistically significant correlated [tau(153)≤0.274; p<0.01] as well as the metaphors "teaching is guiding" and "teaching is coaching" [tau(153)≤0.298; p<0.01]. Kendall's tau-b was also used for checking the metaphors included in the second multiple choice question (item #2) and showed no important correlations for most pairs [tau(153)≤0.135] with only one pair found statistically significant [tau(153)=0.344; p<0.01] between the metaphor of "teaching is organizing a worksite" and "teaching is training a locksmith to use tools".

Frequencies (N)		**Multiple Choice Question #2**				
		Delivering a product	Changing an individual's schemas	Drawing on tools and resources	Participating in a community	Total
Multiple Choice Question #1	Delivering a product	2	0	0	1	3
	Changing an individual's schemas	1	13	9	2	25
	Drawing on tools and resources	5	15	27	4	51
	Participating in a community	2	29	23	20	74
	Total	10	57	59	27	153

Table 3: Cross tabulation of frequencies (N) for multiple choice questions #1*#2 in relation to the assumptions about knowledge (Wilson 1995)

Teachers' answers for the multiple choice question regarding classroom climate (item #3) which are presented (Tab. 4) showed that most teachers chose the "parent" simile to describe their relationship with students. "Friend" and "saviour" similes were accordingly second and third in preference. These three similes accumulated the great majority of the sample (85.5%). Kendall's tau-b was used to estimate possible correlations between pairs of the similes that were used in this multiple choice question. Only the pair of similes "teacher is like a parent" and "teacher is like a guardian" was found to exceed a statistically significant correlation of 0.30 [tau(153)=0.319; p<0.01].

	Multiple Choice Question #3	
	N	%
Parent	61	39.10
Friend	37	23.72
Saviour	32	20.51
Entertainer	10	6.41
Balanced	9	5.77
Guard	3	1.92
Missing	4	2.56
Total	156	100.00

Table 4: Teachers' beliefs about teacher's role in relation to classroom climate from multiple choice question #3

Regarding the similes for teacher's role as a professional (item #4), frequencies are presented (Tab. 5). Most of teachers preferred the metaphors of "researcher", "reflective" and "visionary of a society of equal opportunities". Cumulatively these answers represent 66% of the sample. Kendall's tau-b for intercorrelations between pairs revealed significant correlation at 0.40 between the "parent" and "gardener" similes [tau(153)=0.402; $p<0.01$] and at 0.34 for the similes of "manager" and "reflective" [tau(153)=0.339; $p<0.01$]. None of the other pairs exceeded a 0.30 correlation.

	Multiple Choice Question #4	
	N	%
Researcher	38	24.36
Reflective	34	21.79
Visionary	27	17.31
Sculptor	22	14.10
Expert	10	6.41
Gardener	10	6.41
Public Servant	8	5.13
Manager	1	0.64
Missing	6	3.85
Total	156	100.00

Table 5: Teachers' beliefs about teacher's role as professional from multiple choice question #4

The open questions (items #5, #6 & #7) of the second part of the questionnaire elicited a great number (26) of Greek teachers' metaphors presented (Fig. 1). The dominant metaphor was that of the teacher as "gardener" and second favourite metaphor was that of the teacher as "guide". The rest of metaphors in order of preference were: teaching as "flying a kite"; teacher as "coach"; classroom as "bee hive" and as "worksite of knowledge"; teaching as "rock climbing"; teacher as "cook", "parent", "acrobat", "researcher"; teaching as "a football game"; teacher as "director", "maestro", "missionary", "captain of an aircraft", "sculptor", "locksmith", "captain of a ship", "students' friend"; teacher-student relationship as "a Platonic love affair"; teaching as "obstetrics" (referring to Socrates' heuristic teaching method), "revelry"; teacher as "actor", "general" and, finally, teaching as "puzzle".

Each metaphor elicited from the open questions (items #5, #6 & #7) was categorized according to the assumptions about knowledge (Wilson 1995) that it conveyed. The rating was done independently from the authors who had to identify the assumptions about knowledge and teaching procedure according to Wilson (1995). To each category a number was given from 1 to 4 and if a teacher's metaphor was considered not informative enough, the authors rated the metaphor as "missing" for this specific analysis. Cohen's Kappa was used to measure interrater-reliability between the two raters and was found 0.905 ($p<0.01$), while none of the metaphors was rated as "missing". This rating produced comparable results (Tab. 2) with the answers given in the related multiple choice questions (items #1 & #2). Marginal Homogeneity Tests showed that the distribution of the results from the open questions (items #5, #6 & #7) was not similar neither to the distribution of the answers given to the first multiple choice question –item #1– ($p=0.00<0.5$) nor to the distribution of the ones given to the second multiple choice question –item #2– ($p=0.00<0.5$) which were both related with Wilson's (1995) categorization of the assumptions about knowledge. Thus, the research hypothesis that teachers prioritized their beliefs about knowledge when choosing metaphors was rejected. Nevertheless, teachers' metaphors elicited from the open questions and categorized according to the assumptions about knowledge that they convey (Wilson 1995) are indicative of teachers' beliefs.

Discussion

This study presents findings similar to those of the current international research about metaphors. Furthermore, it illustrates the diversity of the elicited Greek teachers' metaphors about teaching and learning relating them to the Greek social and educational context, thus contributing to the international research regarding metaphors. Enlightening insights to the factors influencing Greek teachers' choice of metaphors are discussed and they are related to personal beliefs, aesthetics as well as experiences, unveiling how current culture and actuality in Greece has an effect on teachers' thinking about teaching and learning. The main conclusion drawn from this study may be that teachers' metaphors themselves should not be blamed for potential unsatisfactory practices; a finding which is similar to those of the international research. On the contrary, teachers' interpretation about the metaphors they choose seems to be influential, showing that the exercise of creating, analyzing and using metaphors can be beneficial to them by promoting a better understanding of their roles and identities. During metaphorical projection, old foundational assumptions and deeply rooted beliefs, which are tacit, are revealed allowing for awareness, discussion and transformation.

The choice of a metaphor is a highly consequential decision, since metaphors bring with them certain well-defined expectations as to the possible features of target concepts, and may lead to different ways of thinking and to different activities (Sfard 1998). Within this context of understanding, the inconsistency between the answers given in items #1 and #2, evident in the data analysis, made us wonder about the factors that had influenced teachers' decisions. Data analysis resulted in rejecting the initial research hypothesis that teachers prioritized their beliefs about knowledge when choosing metaphors, failing to recognize the similar pairs of metaphors in terms of assumptions about knowledge and the corresponding conceptions about instruction. In order to research the possibility that the metaphors used for items #1 and #2 were ambiguous, we presented to 10 teachers Wilson's (1995) categorization (Tab. 1)

accompanied with the first part of the questionnaire and instructed them to choose the metaphor that express their beliefs about knowledge. On this occasion all teachers' answers were consistent excluding the possibility of metaphor ambiguity. Since metaphor ambiguity was excluded, an explanation for the inconsistency in teachers' answers could be that most of them had not elicited their personal theories – at least with the help of metaphors – and were not aware of their beliefs. Teachers seemed unable to delve into the metaphors and connect the assumptions about knowledge that they conveyed to specific teaching practices (epistemological issues). Another confounding variable that might have interfered is the aesthetics that the metaphors conveyed. At the open questions 31 teachers prefer the metaphor of "gardener" which was also included in the second multiple choice question formulated to express "changing an individual's schemas" and was highly preferred (Tab. 2). The same can be remarked for the second metaphor in preference in the open questions, the "guide" metaphor, was also included in the first multiple choice question properly formulated to express "drawing on tools and resources", a metaphor which was also high in preference by teachers. Noticeable was also that the metaphors related to "delivering a product" were systematically avoided by the teachers. The high recurrence in Greek literature of the assumption about knowledge as "delivering a product" is usually associated with negative comments and characterized old-fashioned and traditional. Thus, teachers were able to easily identify and avoid the related metaphors. This also prompts strongly to the role of awareness in prioritizing beliefs about knowledge when choosing metaphors rather than prioritizing aesthetics. Special care was taken when the metaphors conveying the assumption "delivering a product" were selected, so as not to include metaphors that had already been criticized in the Greek literature. The familiarization of teachers with this assumption (in contrast to the other three ones which they seemed not to be so skilful at selecting) implies that while teachers are very well aware of what they are supposed to avoid during their teaching, they seem not so well informed about what to do in their everyday practice. Teachers rather than showing preference by choosing, they demonstrated preference by avoiding the specific metaphor.

Teachers' answers about their role in relation to classroom climate (item #3) are presented (Tab. 4). The "parent" metaphor is first in preference with teachers equally divided between "friend" and "saviour" metaphors as their second and third preference respectively. The fact that teachers prefer parallelizing the teacher-student relationship with the parent-child relationship along with 115 of them being parents may imply that they form their opinion from personal experiences. An explanation for this may be the lack of relevant pedagogical content knowledge. Although there are university courses that refer to teacher-student relationship, no specific course systematically organizes all the roles mentioned in the metaphors and there is no specific training for in-service teachers that focuses on a systematically organized theory about classroom climate connecting it to everyday practice. Another approach could assume that while teachers had the relevant pedagogical content knowledge, they couldn't transform it into praxis due to the lack of relevant training. Therefore, alternative beliefs derived from their everyday experiences formed their personal theories about classroom climate and were recorded in their answers. The preference for the metaphors of "friend" and "saviour" could be explained in similar terms.

Teachers answered the question (item #4) regarding their role as professionals (Tab. 5) divided among four main metaphors which presented teacher as "researcher", "reflective", "visionary of social change" and "sculptor of souls". The metaphors of teacher as "researcher" and "reflective" are associated with post-modernism and are

prominent and influential regarding the current debates about teachers' role as professional in Greece, whereas the metaphors of teacher as "visionary of social change for a society of equal opportunities" and "sculptor of souls" are associated with modernism and related to debates which belong to the near and distant past accordingly. An exploratory approach to this almost equally balanced choice between metaphors associated with modernism and post-modernism could be that it echoes incongruities of teachers' pedagogical content knowledge, personal theory and everyday practice, or a confusion in teachers' core beliefs, foundational knowledge and informal theory for teaching in terms of Taylor's, Dirkx's and Pratt's (2001) "Model of Personal Pedagogical Systems". The low preference for the metaphors of teacher as "expert", "public servant" and "manager" may be due to the idealized way with which education is treated usually in Greece that neglects its economical and managerial aspects, focusing on the values of humanism rather than expertise or professionalism (Kokkotas 2003). The preference for "gardener", although an outdated view of teacher role, can be considered coherent in the context of western culture where such metaphors are prominent (see also Fox 1983).

Data analysis with Kendall's tau-b about the interrelation of items generally showed that there were no significantly correlated pairs of metaphors for the multiple choice questions (items #1, #2, #3 & #4). Evidently teachers answered to each metaphor independently. This could further support the construct validity of the instrument, implying that each metaphor corresponded to a specific and unique assumption, role or climate differing significantly from the others. Of course this cannot be considered as a measure of construct validity since confounding variables (e.g. each metaphor's aesthetics) may have also interfered.

The open questions (items #5, #6 & #7) brought to the surface a series of metaphors which were not mentioned to the first part of our questionnaire or even to the relevant literacy revealing the variety with which Greek teachers conceptualize their role and the teaching process. Metaphors such as "rock climbing", "acrobat", "football", "director", "maestro", "missionary", "captain", "love affair", "obstetrics (Socrates)", "revelry", "actor", "general" and "puzzle" appeared (Fig. 1). Metaphorical pluralism embraces a promise of a better research and a more satisfactory practice, unveiling how current culture and actuality in Greece can really have an effect on teachers' thinking. A multimetaphorical framework with its flexibility does not imply that "anything goes", resulting in a complete methodological freedom and in a reduced need for empirical evidence. Rather, it satisfies the need for local sense making and relinquishes the hope of a consistent global theory (Sfard 1998).

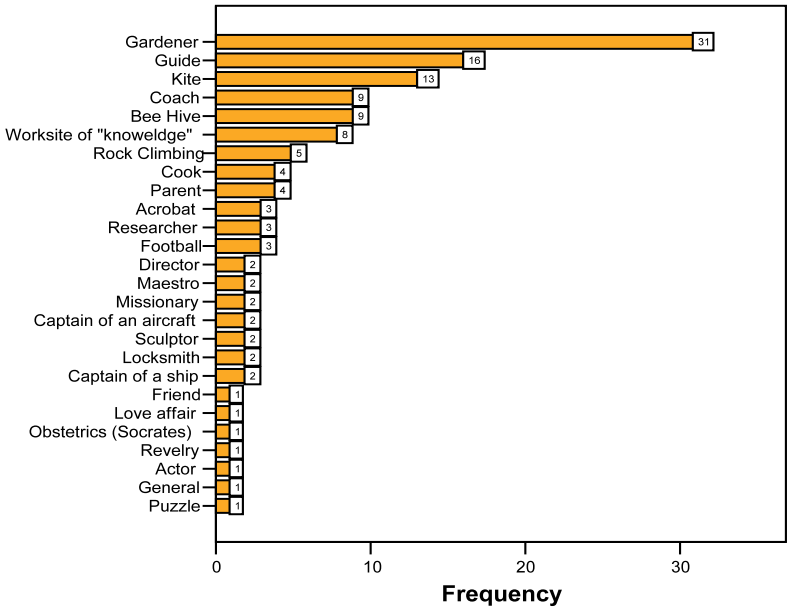

Figure 0: Greek teachers' metaphors for teaching and learning derived from the open questions (items #5, #6 & #7)

Further analysis of the open questions, as already described, focused on teachers' beliefs about knowledge assigning each metaphor to Wilson's (1995) assumptions about knowledge. According to this analysis most teachers focused on "delivering a product" and some of them on "changing an individual's schemas". This finding is similar to the research results of Martinez, Sauleda & Huber (2001). Although teachers of the sample seem to adopt metaphors that represent contemporary scientific community discussions regarding the assumptions about knowledge, teacher role and the nature of teaching and learning, the qualitative analysis revealed that beneath their choices lurk traditional and old fashioned ideas from which they don't manage to escape. Category "guide" for example, includes a variation of metaphors with important differences for teacher role, student role and the teaching process (e.g. teacher can be presented as a guide through the jungle –survival– or as a tourist guide; students can explore together with the teacher or they can simply view the sights). Thus, teachers' metaphors should not be held responsible for potential unsatisfactory practices, but rather their interpretations. This finding –which is derived from words and expressions used, as well as "reading between the lines"– may support our assumption concerning the incongruities of teachers' pedagogical content knowledge, personal theory and everyday practice. Teachers' beliefs about what learning is, how teaching and learning actually occurs, and how teaching and learning should occur ideally could act as a filter through which teachers make their decisions rather than just relying on their pedagogical content knowledge or curriculum guidelines. Beliefs of this kind appear to be cogent enough to either facilitate or slow down educational reform (Handal 2003). Furthermore, teachers' beliefs for learning and teaching are related to practice defining their perception of learner's role as an active autonomous creator of knowledge or a passive dependent, receiver of knowledge. Since answering to open questions is the usual procedure for eliciting metaphors (Miller et al. 2002; Fenwick 2000; Martinez et al. 2001; etc), we consider that teachers expressed freely and authentically at the open questions where they give clues of their beliefs about everyday practice.

A prevailing and recurring issue at the metaphors elicited from the open questions is teachers' concern about students' social skills while only few metaphors

focused on learner's participation in a community as a means of learning. It seems that teachers are more worried about students' socialization rather than knowledge and learning as a product of enculturation and adoption of a group's perspective (sociocultural hypothesis of learning, see also Paavola and Hakkarainen 2005). Contemporary aims of the Greek educational reform, explicitly expressed by the recent National Curricula, give an emphasis in students' socialization, adapting to a newly formed multicultural social reality which occurred after accepting a high number of immigrants. The main focus is harmonious coexistence and mutual acceptance and not the participation in a community as a means of learning. Although there has been significant research on how teachers convey the curriculum to their students (Kokkotas 2003; 2004; Matsagouras 1998a; 1998b; 2000; Papas 1995; 1996; Papas et al. 1997), there has been no previous research in Greece using metaphors to reveal teachers' beliefs about the nature of knowledge, teacher role and classroom climate.

Metaphors cross the borders between the spontaneous and the scientific, between the intuitive and the formal being "the most primitive, most elusive, and yet amazingly informative objects of analysis", enabling conceptual osmosis between everyday and scientific discourses (Sfard 1998:4). Nevertheless, metaphors present also known difficulties in analysis related to their nature which constitutes an already discussed limitation of our research. Moreover, this study is characterized by locality and, consequently, there can be no generalizability of the findings due to the difficulty in knowing whether the same questionnaire would be appropriate for teachers within a different context and would produce comparable results, especially since metaphors are culturally defined. Although, this research can be useful to inform more specific curricular decisions regarding the use of metaphors in teacher training and education in Greece with an emphasis on developing teachers' awareness of their personal theory. Test-retest reliability for the multiple choice questions and for the metaphors with which teachers tended to identify as professionals in the open questions was not measured. However, the questionnaire can be considered indicative regarding the elicited teachers' metaphors in relation to their profession and the awareness with which they treat them. Additionally, the questionnaire was not oriented to objective measurement and cannot be considered to fully address teachers' beliefs for the already mentioned topics of analysis (assumptions about knowledge and corresponding conceptions of instruction, teacher role as professional and teachers' role in relation to classroom climate). As already mentioned, in order to reduce the bias of teachers' responses at the open questions (by giving only one or two specific examples), it was decided to present them the majority of metaphor examples from the relevant Greek literature at the preceding multiple choice questions. Nevertheless, teachers didn't answer the open questions without being primed by particular framings and their responses may have been biased. More than half (60%) of the metaphors elicited from the open questions were reiterations of some of the metaphors given in the first part in our questionnaire. Of course this cannot be an estimation of bias since the majority of metaphor examples from the relevant Greek literature were covered in the multiple choice part of the questionnaire, so reiteration would be expected to some extent. Finally, effects of gender and age were not measured.

Our research findings are supportive to the remark that teacher education programs are usually concentrating on imparting pedagogical knowledge while little consideration is given to modifying teachers' beliefs (Tillema 1995). They also indicate that traditional teacher education does not sufficiently affect Greek teachers' personal theories which seem to remain implicit and therefore unaffected by their pre-

service education and, probably, any in-service training. Teachers' pedagogical content knowledge and prescriptive assumptions (Brookfield 1995) seem to be in contradiction with their theory-in-action (Argyris & Schön 1974:78). Not surprisingly, during metaphorical projection, old foundational assumptions and deeply rooted beliefs, which are tacit, prove to have travelled from one domain to another unconsciously, usually not to the benefit of new theories, barring fresh insights, undermining the usefulness of the resulting conceptual system, and perpetuating beliefs and values that have never been the object of critical inquiry (Sfard 1998). Thus, elicitation of teachers' metaphors and their analysis, elaboration and development could contribute to teacher education and training programs by providing valuable information regarding teachers' beliefs to the educator. Metaphors can contribute to the revitalization and explication of existing schemas and orientation which in a substantial way dominate knowledge acquisition within a training context (Elbaz 1983). Moreover, diagnosis, to which metaphors can play a part, is especially important in training professionally experienced teachers more than in teacher education itself, enabling the trainer to connect new information to trainees' pre-existing ideas and beliefs (Tillema 1995). Metaphor elicitation can be implemented either in the entry phase of teacher education programs or in later phases (Ben-Peretz et al. 2003). Moreover, metaphors could be used to help teachers become aware of the questions, assumptions and values they bring to teaching and to promote a reflective approach. Insights into one's own and others' perspectives and actions could be also promoted by sharing metaphors among colleagues, if experiences with their subsequent interpretation are expressed through the metaphors shared (Sumsion 2002).

Through the creation, formation, and study of personal teaching metaphors that encapsulate desired teaching attributes, a new insight can evolve into the way Greek teachers seek a satisfying teacher role.

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